

10/676,455

H0280

REMARKS

Claims 1-24 are currently pending in the subject application and are presently under consideration. A listing of pending claims is found at pg. 4-7. Claims 1, 11, and 21 have been amended to further emphasize novel aspects of the claimed invention. Claim 22 has been amended to cure minor informalities. In addition, the specification has been amended as indicated on pg. 2-3.

Favorable reconsideration of the subject patent application is respectfully requested in view of the comments and amendments herein.

**I. Rejection of Claims 1, 4-6, 8, 9, 11, 14, 15, 18, 21, and 23 Under 35 U.S.C. §102(e)**

Claims 1, 4-6, 8, 9, 11, 14, 15, 18, 21, and 23 stand rejected under 35 U.S.C. §102(e) as being anticipated by Pinto *et al.* (US 6,566,885). It is respectfully submitted that this rejection should be withdrawn for at least the following reasons. Pinto *et al.* does not disclose or suggest each and every element of the subject claims.

For a prior art reference to anticipate, 35 U.S.C. §102 requires that "*each and every element* as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950 (Fed. Cir. 1999) (*quoting Verdegall Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)) (emphasis added).

The invention relates to a system and method for detecting, analyzing, and treating soft defects on a reticle in real-time. (See pg. 4, ln. 1-2). In particular, independent claim 1 (and similarly independent claims 11 and 21) recites *an excising component that removes the signature by transforming the signature into gaseous form and removing the gaseous signature with a pumping system*. Pinto *et al.* does not disclose an excising component that removes signatures let alone signatures transformed to gaseous form as in the claimed invention.

Instead, Pinto *et al.* inspects, detects, uncovers, and characterizes defects. (See col. 2, ln. 36-37, 41-42 and col. 3, ln. 8-10). After defect detection and characterization,

10/676,455

H0280

Pinto *et al.* determines whether the manufacturing process should continue or be terminated. The cited references does not teach or suggest removal of defects let alone on the novel manner of applicants' claimed invention. In particular, the claimed invention *determines whether a signature is present in a chemical composition of a soft defect, and removes the signature by transforming the signature into gaseous form and removing the gaseous signature with a pumping system.* Pinto *et al.* does not teach or suggest these aspects of applicants' invention as recited in claims 1, 11, and 21 (and claims 4-6, 8, 9, 14, 15, 18, and 23 which respectively depend there from). Accordingly, this rejection should be withdrawn.

## **II. Rejection of Claim 20 Under 35 U.S.C. §102(b)**

Claim 20 stands rejected under 35 U.S.C. §102(b) as being anticipated by Celler *et al.* (US 5,482,802). It is respectfully submitted that this rejection should be withdrawn for at least the following reasons. Celler *et al.* does not disclose or suggest each and every element of the subject claims.

In particular, claim 20 recites a method that facilitates treatment of a signature associated with a soft defect, comprising: employing a Focused Ion Beam in a *non-reactive gas environment*; effecting a *phase shift* in the signature to a gaseous state; and providing a *continuous pump-out of the non-reactive gas environment* to remove a signature in gaseous form. Celler *et al.* fails to disclose or suggest these novel aspects of applicants' claimed invention.

Celler *et al.* removes a defect by dispersing a reaction gas adjacent to a portion of the material to be removed and irradiating the portion with a focused particle beam. This creates a chemical reaction of the material into removable particulate matter so that it can be desorbed and separated from the substrate. (See col. 2, ln. 33-45). Celler *et al.* does not use a non-reactive gas environment, create a phase shift of the signature from solid to vapor form, or continuously pump out the non-reactive gas environment to remove the signature in gaseous form. To remove a defect, the invention as claimed uses a focused ion beam in a non-reactive gas environment to induce a phase shift of the signature from solid to gaseous form. The non-reactive gas environment is continuously pumped out along with the vaporized signature. Thus, Celler *et al.* does not disclose or suggest such

10/676,455H0280

novel aspects of the claimed invention as recited in claim 20. Accordingly, this rejection should be withdrawn.

**III. Rejection of Claims 2 and 12 Under 35 U.S.C. §103(a)**

Claims 2 and 12 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Pinto *et al.* in view of Natsubori *et al.* (US 5,105,092). It is respectfully submitted that this rejection should be withdrawn for at least the following reasons. Claims 2 and 12 depend from claims 1 and 11, respectively. Natsubori *et al.* detects foreign particles or faults on the surface of a reticle or photomask having a pattern in semiconductor device manufacturing processes, but does not remove signatures. Therefore, Natsubori *et al.* fails to cure the aforementioned deficiencies of Pinto *et al.* with respect to independent claims 1 and 11 and this rejection should be withdrawn.

**IV. Rejection of Claims 3, 13, and 22 Under 35 U.S.C. §103(a)**

Claims 3, 13, and 22 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Pinto *et al.* in view of Lu *et al.* (US 6,383,715). Withdrawal of this rejection is requested for at least the following reasons. Claims 3, 13, and 22 depend from claims 1, 11, and 21, respectively. Lu *et al.* provides a strongly water-soluble photoacid generator in resist compositions that avoids blob defect formation, but does not disclose treatment for defects let alone in the novel manner of applicants' claimed invention. Thus, Lu *et al.* fails to cure the aforementioned deficiencies of Pinto *et al.* with respect to independent claims 1, 11, and 21. Accordingly, this rejection should be withdrawn.

**V. Rejection of Claims 7, 16, and 17 Under 35 U.S.C. §103(a)**

Claims 7, 16, and 17 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Pinto *et al.* in view of Tracy *et al.* (US 5,847,821). Withdrawal of this rejection is respectfully requested for at least the following reasons. Claim 7 depends from claim 1, while claims 16 and 17 depend from claim 11. Tracy *et al.* discloses an analysis tool that can navigate directly to previously identified defect locations on semiconductor wafers at high magnification, but does not excise signatures. Therefore,

10/676,455H0280

Tracy *et al.* fails to cure the aforementioned deficiencies of Pinto *et al.* relating to independent claims 1 and 11; and this rejection should be withdrawn.

**VI. Rejection of Claims 10 and 19 Under 35 U.S.C. §103(a)**

Claims 10 and 19 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Pinto *et al.* in view of Chiou *et al.* (US 6,704,691). Reversal of this rejection is respectfully requested for at least the following reasons. Claim 10 is dependent on claim 8, which is dependent on independent claim 1, and claim 19 depends from independent claim 11. Chiou *et al.* describes a system and method for in-line monitoring of semiconductor quality using measurable equipment signals in conjunction with a correlation model that predicts the process quality of a run wafer, but does not remove signatures. Chiou *et al.* does not cure the aforementioned deficiencies of Pinto *et al.* with respect to independent claims 1 and 11, and this rejection should be withdrawn.

**VII. Rejection of Claim 24 Under 35 U.S.C. §103(a)**

Claim 24 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Pinto *et al.* in view of Celler *et al.* It is respectfully submitted that this rejection should be withdrawn for at least the following reasons. Claim 24 depends from independent claim 21. In addition, claim 24 recites means for converting a signature to *gaseous form* for removal from the reticle. Celler *et al.* uses a reaction gas to create a chemical reaction for removal of the material in solid form (See col. 2, ln. 41-45) but *does not transform the signature to gaseous form*. Thus, Celler *et al.* does not cure the aforementioned deficiencies of Pinto *et al.* with respect to independent claim 21. Accordingly, this rejection should be withdrawn.

10/676,455H0280CONCLUSION


The present application is believed to be in condition for allowance in view of the above comments and amendments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063.

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephone number below.

Respectfully submitted,

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